REMARKS/ARGUMENTS

At the outset, Applicant appreciates the thorough review and consideration of the subject application. The Non-Final Office Action of June 8, 2009 has been received and its contents carefully noted. By this Response, no claims have been amended. No claims are currently canceled and no new claims are added. Accordingly, claims 1 - 17 and 19 remain pending in the application. In view of the following remarks, Applicant respectfully requests reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Allowed/Allowable Claims

The Office Action indicates that claims 3 - 7 and 9 - 14 are allowed and claims 2, 8, 16 and 17 are objected to but allowable if presented in independent form.

Rejections Under 35 U.S.C. § 103

Claims 1, 15 and 19 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent Application Publication No. 2003/0099216 by *Nilsson, et al.* ("*Nilsson*") in view of U.S. Patent No. 6,385,185 issued to Huang, ("Huang"). Applicant respectfully traverses this rejection for at least the following reasons.

The Federal Circuit has held many times that to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka,* 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson,* 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

In the Office Action of June 8, 2009, the current rejection admits that Nilsson fails to teach or suggest providing channel estimation wherein channel propagation is modeled using a linear superposition of a finite number of discrete multi-path components following an uncorrelated-scattering wide-sense stationary model. To alleviate this deficiency of Nilsson, the rejection turns to Huang. However, Huang describes at column 5 line 39 through column 7 line 25 channel estimation via use of matched filters. Such a process assumes a stationary window using a weighted average. The present invention however uses and claims linear super-position of discrete multi-path components following an uncorrelated-scattering wide-sense stationary model. As described in paragraph [0026] of the specification:

> The channel h(t,.tau.) is assumed to follow the wide-sense stationary uncorrelated scattering model with Rayleigh fading and multipath response as described in "J. G. Proakis Digital Communications, NY: McGraw-Hill, 3.sup.rd edition, 1995". h .function. (t , .tau.) = p = 1 P .times. c P .function. (t) .times. .delta. .function. (.tau. - .tau. p) (4) where P denotes the number of multipath components, and c.sub.p(t) and .tau..sub.p denotes the time-varying complex coefficient and the propagation delay associated with p-th multipath component. The path complex coefficients c.sub.p(t) vary depending on the velocity of the UE and of the surrounding scattering objects (e.g., buildings, hills but also other moving objects) with respect to the BS. When the BS uses Q antennas for transmit beamforming, the channel model expressed by (4) generalizes to h.function. (t , .tau.) = p = 1 P .times. w H .times. a .function. (.theta.p) .times. c p .function. (t) .times. .delta. .function. (.tau. - .tau. p) (5) where [0027] w=[w.sub.0, . . . , w.sub.Q-1].sup.T denotes the transmit beamforming weight vector [0028] a(.theta.)=[.alpha..sub.0(.theta.), . . . , .alpha.sub.Q-1(.theta.)].sup.T denotes the antenna response vector in a direction .theta. The superscripts ().sup.T and ().sup.H denote transpose and Hermitian transpose respectively. Since in a practical implementation the vector w typically may vary at most at the slot rate for the sake of notation, its variations with time are not explicitly taken into account in equation (5).

Moreover, the multi-path components of the claimed invention are characterized by

a time-varying multi-path complex coefficient. This characterization is absent from Huang. The estimation process taught by Huang is a correlated conventional method using equally weighted averaging. See column 5, line 44 and column 5, line 64. Not only does the cited text in Huang not teach or suggest the present invention, but one skilled in relevant art would not turn to Huang to resolve the inadequacy of Nilsson. While Huang teaches a means of channel estimation, the Huang methodology is dissimilar from that claimed by the Applicant.

According to the claimed embodiments of the present invention, in the presence of transmit beam forming, each multi-path component coefficient of the DPCH channel differs from the corresponding multi-path coefficient of the CPICH channel by an unknown complex scale factor. The present invention provides an estimate for this complex scale factor.

Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 103(a) rejection of claims 1, 15 and 19.

CONCLUSION

Applicant believes that a full and complete response has been made to the pending Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

No fee is believed due for this submittal. However, any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

Respectfully submitted,

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